

REMARKS

Claims 1-9 were examined in the Final Office Action mailed September 16, 2005. In response this Office Action, the Applicants have added new claim 10, and respectfully submit the following remarks.

1. The Claims Are Patentable Over Nagasaki and Bondestam:

Claims 1-3 and 5-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,108,190 to Nagasaki ("Nagasaki"), in view of European Patent Publication No. 1 052 309 A2 to Bondestam, *et al.* ("Bondestam"). The Applicants respectfully traverse the pending § 103(a) rejections on the grounds that there would have been these no suggestion or motivation to combine these references to obtain the invention recited in the pending claims.

The Present Claims: In the Applicants' June 30, 2005 Amendment, claim 1 was amended to incorporate the limitations of its dependent claim 4. As amended, claim 1 recites that the support member is a part of the wall of the process chamber and is made of a metal matrix composite. As noted in the June 30, 2005 response, this unique combination of support member arrangements and materials advance the state of the art by addressing susceptor cracking problems due to thermal stresses during blazing, while minimizing chamber volume. *See, e.g.*, Specification at 7:16-21 (integrated formation of support member (*e.g.*, Fig. 1, element 6) as a metal matrix part of the chamber wall simultaneously supporting a heated placement stage (*e.g.*, Fig. 1, susceptor element 4) to minimize chamber volume); 9:26-10:5 (metal matrix composite

blazable and having low thermal expansion, close to ceramics, precluding high thermal stresses in susceptor 4).

The Cited References: In the pending Final Office Action, it is acknowledged that Nagasaki does not teach a “processing apparatus comprising a process chamber made of metal ... and a seal member located between [the] support member and a wall surface of said process chamber.” September 16, 2005 Final Office Action at 2-3, ¶ 5. Bondestam is cited as containing the missing features, and the modification of Nagasaki to incorporate the Bondestam arrangements is justified *post hoc* with the assertion that it would have been obvious to combine these references “in order to improve the cleanliness of the substrate load chamber and reduce the degree of substrate contamination as taught by” Bondestam. *Id.* at 3, ¶ 7.

The Federal Circuit requires that there must be a suggestion or motivation in the references for their combination, noting that “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggest the desirability of the combination.” MPEP § 2143.01 (citing *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990)). And as part of the test for a showing of implicit obviousness, the Examiner is required to consider the nature of the problem to be solved. *Id.* (citing *In re Kotzab*, 217 F.3d 1365 (Fed. Cir. 2000)). The Applicants respectfully submit that in fact there would have been no suggestion or motivation for the combination of the Nagasaki and Bondestam references to address the problems solved by the present invention.

The present invention is directed to preventing, *inter alia*, susceptor cracking due to excessive thermal stress. Neither Nagasaki nor Bondestam so much as mentions anything regarding susceptor cracking. Accordingly, one of ordinary skill, seeking to solve susceptor cracking problems addressed by the present invention, would have found no suggestion to combine these references to eliminate susceptor cracking.

As to motivation, the Applicants respectfully submit that the alleged motivations to combine Nagasaki and Bondestam – improving cleanliness and reducing substrate contamination – are completely irrelevant to the issue of susceptor cracking; in other words, one of ordinary skill seeking to solve susceptor cracking problems would not have sought to combine references to improve cleanliness instead of addressing susceptor cracking.

Thus, in the absence of a motivation to combine these references to solve susceptor cracking problems, the suggestion for their combination could only arise from the mere knowledge that it would be physically possible to modify Nagasaki in the manner of Bondestam – which, of course, would be an impermissible substitution of hindsight knowledge of the present invention for an objective suggestion or motivation for the combination, in violation of the Federal Circuit's teachings in *In re Mills*.

In addition to the lack of suggestion or motivation to combine, the Applicants note that Bondestam further teaches away from at least one novel aspect of the present invention. As recited in claim 1, the present invention integrates a metal matrix composite support member as part of a process

chamber wall. In contrast, as has been conventional in the art, Bondestam teaches a process chamber made of metal, not a metal matrix composite. Metal has traditionally been used, in part due to its easy machining, which facilitates production and assembly of the process chamber, and in part because use of metal provides the fixed parts and movable parts of the chamber (*see, e.g.*, Fig. 3, fixed parts 9,10, movable part 18) with substantially the same coefficient of thermal expansion, which permits accurate joining of these parts. Against this background (as taught and confirmed by Bondestam), taking as a whole “the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to solved” as required by the Federal Circuit, it would not have been obvious to a person of skill in the art to make a portion of the process chamber wall (*i.e.*, the claimed support member) using a metal matrix composite, *a material with a different coefficient of thermal expansion than the rest of the process chamber*.

In view of the lack of suggestion or motivation for the combination of the Nagasaki and Bondestam references to solve the problems addressed by the invention recited in claim 1, this claim and its dependent claims 2-3 and 5-10 are patentable over these references. Reconsideration and withdrawal of the pending § 103(a) rejection is respectfully requested.

CONCLUSION

In view of the foregoing amendments and remarks, the Applicant respectfully submits that claims 1-3 and 5-10 are in condition for allowance. Early and favorable consideration, and issuance of a Notice of Allowance for these claims is respectfully requested.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #010986.52734US).

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Respectfully submitted,



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